Treatment of odontogenic cutaneous sinus tract misdiagnosed for 6 years

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Abstract
Cutaneous odontogenic fistulas or sinus tracts are frequently misdiagnosed and incorrectly treated, leading to unnecessary procedures and patient suffering. An understanding of the draining of cutaneous sinus tracts will lead to more appropriate treatment [1]. Most cases respond to conservative, nonsurgical root canal therapy. Our objective is to report a case of cutaneous sinus tract evolving for 6 years secondary to chronic periapical dental infection caused by old trauma. The conservative treatment of the causal teeth was sufficient to achieve healing despite the oldness of the fistula.

Introduction
An orocutaneous sinus tract is a communication between the oral cavity and the skin surface that is infectious in origin and allows draining of pus from the oral cavity onto the skin surface. The most common location is a tract that originates in the jawbone (usually mandible). A review of case reports shows that after misdiagnosis of this lesion topical and surgical therapy are frequently attempted on the cutaneous aspect of the lesion and no dental treatment is provided. The clinical case reported in this paper emphasizes the need of a prompt recognition of the etiological factor for a correct treatment planning on facial cutaneous sinus tract.

Case report
A healthy 26-year-old woman presented to our dental department complaining of a non-healing fistula, and a swelling on her chin with an associated purulent discharge (Figure 1). She reported a 6-years history of a drained and recurrent abscess in his face and has been previously treated with different therapeutic procedure for this condition without response:

- The fistula was treated many times with antibiotics prescribed by the dermatologist, who diagnosed the fistula as a furuncle.
- She also underwent two surgical excisions in the maxillofacial department followed by antibiotic treatment without any improvement and the fistula reappears each time.

At the interview the patient reveals the notion of an old traumatism at the age of 15 years.

At the intra oral examination we note a dyschromia of 31 and 41 (Figure 2) both teeth were free of decay but responds negatively to the sensitivity test, the necrosis of teeth 31 and 41 can be explained by the notion of untreated old trauma at the young age.

Endodontic treatment was done to teeth 31 and 41 followed by filling with calcium hydroxyde. A dental radiograph revealed diffuse radiolucency at the apex (consistent with a chronic periapical abscess) (Figure 3).

A check-up appointment is given to the patient after 15 days. No clinical improvement of the lesion, fistula is steel productive (Figure 4).

The lesion was disinfected with Chlorhexidine 0.2% (Figure 5) and a locating cone was made to check the causative tooth by means of a capillary tips in which we inserted a cone of gutta percka (Figure 6).

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prolong the effect of CaOH₂ and a control appointment was given one month later.

At 2 months control appointment fistula is no longer productive (Figure 10), no serosity was found in the canal, the majority of the calcium hydroxide was not resorbed, we decide the final root canal filling (Figure 11). After 6 months, the infection resolved, the cutaneous lesion healed and a small umbilication in the skin remained (Figure 12).

The radiological examination show a bone healing (Figure 13).
It has been estimated that half of all patients undergo multiple surgeries and trials of antibiotics before definitive diagnosis. Such diagnostic and therapeutic misadventures highlight the importance of communication between medical subspecialists and general dentistry practitioners in the evaluation of patients with head and neck lesions [6].

**Positive diagnosis and treatment**

Odontogenic cutaneous sinus tract can be caused by periapical infections around the root apices resulting from pulp necrosis, caries, pericoronitis or traumatic injury. Radiographic finding are important for diagnosis. On the assumption that the relevant tooth cannot be ascertained by periapical radiography, the tracking of the fistula can guide the ultimate diagnosis. Despite sometimes this radiography remains insufficient to evaluate the extent and the relations of the periapical lesion with the adjacent teeth as in our case where the radiographs in three dimensions find their indications such as the cone beam. This fact can explain the absence of healing after the first treatment in which 42 and 32 were not suspected.

Eradiation of the original source of infection by means of nonsurgical root canal treatment (if the tooth can be preserved) is most important for treatment of odontogenic cutaneous sinus tract sometimes complemented by surgery.

Automatic closure of the tract should be anticipated within 7 to 14 days after root canal treatment. In this case, the reduction of the abscess and the closure of sinus tract was obtained after 2 months.

This finding can be explained by the delay in identifying causal teeth and by the oldness of the lesion. For this reason, we chose at the third appointment to renew the calcium hydroxide mixed with an oily carrier (Oil of liver of moru) to prolong the action of calcium hydroxide (decreasing acidity, inflammation and intracanal serosities). Sometimes surgical excision of the cutaneous sinus is necessary to eliminate the inflammatory tissue (such us apical debridement, apicoectomy, fistula debridement).

In our case no tissue debridement was needed since at 2 months appointment fistula is no longer productive so the root canal treatment validated the primary dental origin of the skin lesion and definitive root canal filling was done.

At 6 months control appointment the lesion on the chin recovered entirely leaving only a slight hyperpigmented region, and the periapical lesion disappeared on the radiographic examination.

**Conclusion**

Because patients with cutaneous facial sinus tracts of dental origin often do not have obvious dental symptoms, a possible dental etiology may be overlooked. If dental origin is suspected, the diagnosis is easily confirmed by dental examination and dental radiography of the involved area. Early correct diagnosis, based on radiologic evidence of a periapical root infection and treatment of these lesions can help prevent unnecessary and ineffective antibiotic therapy or surgical treatment, reducing the possibility of further complications.

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